



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,988	01/24/2007	Peter Schramm	F-9197	3408
28107 7590 01/20/2010 JORDAN AND HAMBURG LLP 122 EAST 42ND STREET SUITE 4000 NEW YORK, NY 10168				
EXAMINER				
GAMINO, CARLOS J				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
01/20/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/593,988

**Applicant(s)**

SCHRAMM, PETER

**Examiner**

CARLOS GAMINO

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. **Claims 11-13, 14, 15, 22-23, 30-32 and 34-35** are rejected under 35 U.S.C. 102(b) as being anticipated by Rufin et al. (US 4,975,014).

Regarding claim 11, Rufin discloses:

A receiving element, comprising

a bolt having an exterior surface that is substantially parallel to a longitudinal axis of the bolt and that can be introduced into a bore in at least one component [pin (12); refer to figures 1 and 2 for all reference numbers],

said bolt consisting of wear-resistant sintered material [pin (12) can be made from alumina oxide, monolithic ceramics or other ceramic matrix composites; column 3, lines 63-65] and including an axial recess [inset portion (23)] at a forward end [the examiner notes that forward end does equate to terminal end] of said bolt and which is positioned along said longitudinal axis, said recess defining a recess bottom [The examiner notes that portion (23) is axial since it is around an axis and it positioned along the longitudinal axis of the bolt. Additionally, since every 3D object has a top and bottom, the bottom of portion (23) is the surface that contacts inner surface (28).]; and  
a tip comprised of metal arranged at the forward end of said bolt [inserts (13) are made of metal and arranged at the forward end of the pin; column 4, lines 41-44],

the tip including an end section [distal facing surface (29)] which engages in said recess [insert portion (23)] above said recess bottom, said recess being positioned in a connecting area provided at the forward end of said bolt which extends only over a portion of an entire length of said bolt [the insert portion only extends over a portion of the entire pin and it makes a direct connection to the side of the inner surface],

and a forward section [extended portion (32)] which projects axially out of said bolt, said tip further comprising

a transition area being interposed between the forward section [extended portion (32)] of said tip and the forward end of said bolt [the tapered section of the shank (20) is a transition area; best seen in figure 2] and which is in contact with said forward end of said bolt,

said transition area tapering to said forward section of the tip in a manner such that the receiving element has a stepped exterior contour [the tapered section mentioned above tapers towards the tip and forms a stepped exterior contour],

said forward section [extended portion (32)] having a maximum external diameter [this being the diameter of the threads pointed to by (31)] that is less than a corresponding exterior diameter of said bolt [this being the diameter of the head (19)] by a prescribed amount.

Concerning the underlined phrases in the claims, above and below; these limitations are intended use, functional language or material worked upon and do not further limit the apparatus structurally. Therefore, it is the examiner's position that the

(collective) apparatus of the prior art is capable of performing the claimed function(s) with the claimed material (MPEP 2111.02, 2114, 2115).

Regarding claim 12, Rufin discloses:

wherein said exterior surface is coaxial with said axis [the exterior surface of pin (12) is coaxial with its axis].

Regarding claim 13, Rufin discloses:

wherein said at least one component includes at least two components.

Regarding claim 15, Rufin discloses:

wherein said end section [distal facing surface (29)] which engages in said recess has an external diameter that is smaller by a prescribed amount than the maximum external diameter of said forward section [extended portion (32)] [distal facing surface is an external curved surface therefore it has an external diameter and the extended portion has a curved surface opposite the distal facing surface therefore it has a larger maximum external diameter].

Regarding claim 22, Rufin discloses:

wherein said bolt includes a fastening body [head (19)] that is an integral component of said bolt and that comprises a same material as said bolt, said fastening body being disposed at an other end said bolt opposite to said forward end.

Regarding claim 23, Rufin discloses:

wherein said fastening body includes a flange [head (19) is a flange] having an external flange diameter which is larger than said external diameter of said bolt.

Regarding claim 30, Rufin discloses:

wherein said wear-resistant sintered materials comprise oxide ceramics or non-oxide ceramics [alumina oxide; column 3, line 59].

Regarding claim 31, Rufin discloses:

said ceramics include  $\text{Al}_2\text{O}_3$  [alumina oxide; column 3, line 59],  $\text{ZrO}_2$ , or  $\text{Si}_3\text{N}_4$ , or mixtures thereof.

Regarding claim 32, Rufin discloses:

wherein said portion of the entire length of said bolt extends over less than 50% of said entire length [figure 2 clearly shows that the length of the surfaces in contact between the pin and end section is less than 50% of the entire length of the pin].

Regarding claim 34, Rufin discloses:

wherein said receiving element is configured for use in welding equipment.

Regarding claim 35, Rufin discloses:

wherein said welding equipment includes a pressure welding tool.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

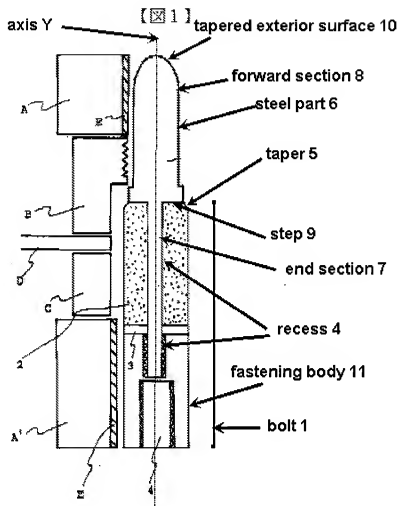
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 11-23 and 30-35** are rejected under 35 U.S.C. 103(a) as being unpatentable over the collective teachings of Takuma et al. (JP 6-226458), Nakamura et

al. (JP 4-19032) and Matsuzaki (JP 2-290696) in view of the collective teachings of DeBell et al. (US 5,248,869), Fukizawa (JP 11-291057) and Ichikawa (JP 5-277750).

Regarding claims 11, 22 and 23,

Takuma teaches a reference pin. The pin has a steel tip (6) and bolt (1) containing a sintered ceramic body (2) made of alumina or silicon nitride. The steel tip fits into an axial recess (4), which has a bottom, in the bolt (1) and has a second diameter that is larger than the diameter of the section that fits into the recess smaller than the exterior diameter of the body. The body includes ceramic because it prevents electrolytic corrosion, prevents spatter from sticking to the pin, and reduces wear and tear. The body also has a taper (5) [transition area], which is in contact with the end of the bolt, and tapers towards the tip and an integral fastening body (11); below figure, abstract and paragraph 0005.



Nakamura teaches a reference pin. The pin has a steel head (2) and a ceramic,  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ , or  $\text{Si}_3\text{N}_4$ , intermediate part (3) which is bonded to head (2) by adhesive (2c). The steel head fits into an axial recess in the ceramic body, has a second diameter that is larger than the diameter of the section that fits into the recess, which has a bottom, and does not extend the entire length of the pin. Base (4) appears to be an integral fastening body; figure 1, page 227 top left column, and abstract.



Matsuzaki teaches a positioning pin. The pin has a metallic introducing member (3) that does not extend the entire length of the pin and a sintered ceramic sleeve (2); figure 2. The member (3) fits into an axial recess, which has a bottom, in the ceramic body, has a second diameter that is larger than the diameter of the section that fits into the recess, and does not extend the entire length of the pin. Threads (5) are an integral fastening body; figure 2, page 633, top left column and abstract.

Collectively, Takuma, Nakamura and Matsuzaki (Takuma collective) teach a center pin with a steel tip and ceramic body. The steel tip has two diameters; the smaller of the two fits into the recess, which has a bottom, of the ceramic body while the larger is large enough to rest on the ceramic body but smaller than the exterior diameter of the body. The tip does not need to extend the entire length of the pin. The body can also have an integral fastening element, a tapered transition section and can be connected to the tip via the recess.

What the Takuma collective does not teach is a receiving element:  
wherein the bolt consists of wear resistant sintered material and  
wherein said fastening body includes a flange having an external flange diameter which is larger than said external diameter of said bolt.

DeBell teaches a locating pin. The pin has a single material ceramic base (12), which comprises neck portion (20), central opening (40), body portion (16) and flange (18), and an elastomeric tip (14). (The examiner notes that this structure is identical to the claimed structure; tip, recess, transition area and flange.) The base is made of

ceramic for impact resistance reasons. Figures 3, 5 and 7 also show that the integral shaft (42) of the tip can vary in length; columns 5-6 and figure 7.

Fukizawa teaches a guide pin. The pin has a single material ceramic body (1) partially force fit into metal member (2); abstract and figure 1.

Ichikawa teaches a guide pin. The pin has a single material metal body with a flange (2, 13) and ceramic tip (1) which is inserted into a partial recess in the base; abstract and figures 1-3 and 5.

Collectively, DeBell, Fukizawa and Ichikawa (the DeBell collective) teach that a tip consisting of a single material can be joined to base with a flange consisting of one material and the length of the bonding surface for the joining does not need to encompass the entire length of the base; i.e. the shaft of the tip does not need to be the full length of the bolt.

All of the limitations are taught by either the Takuma or DeBell collectives. The invention is now reduced to a matter of structure design; which pin best fits the application at hand. It would have been obvious to one of ordinary skill in the art at the time of the invention that the structure of the pin is limited by the apparatus being used, the materials being used and the process being used. One needing a steel tip and ceramic base/bolt would look to the Takuma collective and one wanting a base/bolt with a flange made entirely of the same material and having the tip only partially inserted into a recess in the base would look to the DeBell collective. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the teachings of the Takuma collective could be made into a structure taught by the DeBell collective in

order to use the end product in an existing apparatus or process. Additionally, the claims would have been obvious because a particular technique, i.e. "the DeBell collective structure", was recognized as part of the ordinary capabilities of one skilled in the art. Accordingly, the claim would have been obvious because "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to an anticipated success, it is likely the product not of invention but of ordinary skill and common sense." Thus, the claim would have been obvious because a person of ordinary skill in the art would have been motivated to combine the prior art to achieve the claimed invention and that there would have been a reasonable expectation of success and/or predictable results.

Regarding claim 12, the Takuma collective teaches:

wherein said exterior surface is coaxial with said axis [all of the references above show the exterior surface of the base/bolt coaxial with the axis of the pin].

Regarding claim 13, the Takuma collective teaches:

wherein said at least one component includes at least two components.

Regarding claim 14, the Takuma collective teaches:

wherein said end section of said tip is joined in said recess to said bolt by at least one of an adhesive joint.

Nakamura teaches the pin has a steel head (2) and a ceramic,  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ , or  $\text{Si}_3\text{N}_4$ , intermediate part (3) which is bonded to head (2) by adhesive (2c) to prevent slackening and generation of wear and/or chipping; figure 1, page 227 top left column, and abstract.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the adhesive method of Nakamura to bond the pin of the collectives in order to prevent slackening and generation of wear and/or chipping.

Regarding claim 15, the Takuma collective teaches:

wherein said end section which engages in said recess has an external diameter that is smaller by a prescribed amount than the maximum external diameter of said forward section [as noted above the Takuma collective teaches this].

Regarding claim 16, the Takuma collective teaches:

wherein a step is provided between said forward section and said end section of said tip that defines an axial stop with respect to said bolt.

As can be seen in all of the Takuma collective references a step is provided on the tips so that the tip rests on the bolt. Furthermore, DeBell and Ichikawa teach this. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a step in order to prevent the tip from being pushed into the recess of the bolt too far.

Regarding claim 17, the Takuma collective teaches:

wherein said forward section has an exterior surface that tapers substantially conically toward a free end with a prescribed takeout angle.

All the references teach a tapered tip. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a tapered tip in order to facilitate the placement of workpieces.

Regarding claim 18, the Takuma collective teaches:

wherein an exterior surface of said transition area has a transition takeout angle that is substantially greater than a substantially conical takeout angle of said forward section.

Takuma and DeBell teach that the angle of taper (5) or neck portion (20), respectively, is greater at some point than that of the tip. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this design in order to keep the weight of the workpieces off the tip.

Regarding claim 19, the Takuma collective teaches:

wherein said exterior diameter of said bolt is in a range of 3 to 12 mm [Takuma teaches a bolt with a 11 mm diameter; paragraph 0007].

Regarding claims 20 and 21, the Takuma collective does not teach:

wherein said range is 3.5 to 10 mm or 4 to 8.5 mm.

However Takuma does teach that the diameter of the bolt is 11 mm as noted above.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the size of the bolt would vary depending on the type and size of the materials involved, the manufacturing processes involved, and the end use of the product made. Therefore, choosing a size of a bolt is not an inventive step but merely a basic step in manufacturing.

Additionally, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Regarding claims 30 and 31, the Takuma collective teaches:

wherein said wear-resistant sintered materials comprise oxide ceramics or non-oxide ceramics and said ceramics include ,  $\text{Al}_2\text{O}_3$ ,  $\text{ZrO}_2$ ,  $\text{Si}_3\text{N}_4$ ,, or mixtures thereof [the Takuma collective teaches using these materials as the ceramic bolt].

Regarding claims 32 and 33, the Takuma collective does not teach:

wherein said portion of the entire length of said bolt extends over less than 50% of said entire length or less than 30% of said entire length.

All of the references show different amounts of contacting area between the end of the tip and the recess of the bolt. It would have been obvious to one of ordinary skill in the art at the time of the invention that this area can vary and that a smaller area for joining would require less material and machining but that too little of a contacting area would lead to insufficient joining. Therefore, varying this contacting area is a matter of design and optimization and since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 34, the Takuma collective teaches:

wherein said receiving element is configured for use in welding equipment.

Regarding claim 35, the Takuma collective teaches:

wherein said welding equipment includes a pressure welding tool.

***Response to Arguments***

5. Applicant's arguments filed 10/29/09 have been fully considered but they are not persuasive.

6. The applicant argues that Rufin does not teach the claimed structure of claim 1. The examiner believes that the applicant is trying to overcome the reference by defining the end of the bolt as the "forward end", however this does not mean the terminal end. Also, the examiner would like to note that every recess has a bottom whether that bottom is closed or open and "a recess defining a recess bottom" can be either.

7. The applicant argues that:

"the inset portion 23 does not equate to Applicant's axial recess in which such recess is an axial recess at a forward end of said bolt and which is positioned along said longitudinal axis (of said bolt)."

The examiner disagrees because axial can be anything that is located on, around, or in the direction of an axis and clearly the insert portion (23) is around and in the direction of an axis

8. The applicant argues that neither of the collectives teach all of the claimed limitations. The examiner disagrees and has shown above how all of the claimed features can be found in the collectives. Additionally, the applicant singles out DeBell and states that:

"Applicant's recited tip comprising a forward section which projects axially out of said bolt, and which further comprises a transition area being interposed between the forward section of said tip and the forward end of said bolt which is in contact with the

forward end of Applicant's bolt, said transition area tapering to said forward section of the tip in a manner such that the receiving element has a stepped exterior contour."

The examiner disagrees because one looking at figure 7 of DeBell can clearly see tip (14) has an end that projects out axially from base (12), a tapered section and that it is in contact with the forward end of the bolt. If fact the structure (not material) as claimed is identical to pin of DeBell.

9. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS GAMINO whose telephone number is (571) 270-5826. The examiner can normally be reached on Monday-Thursday, 9:30am-7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CG

/Jessica L. Ward/  
Supervisory Patent Examiner, Art Unit 1793